Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
St. George School

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

? inventory land uses within the recharge areas of all public water supply sources;

? assess the susceptibility of drinking water sources to contamination from these land uses; and

? publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
October 2003

Table 1: Public Water System (PWS) Information

PWS NAME	St. George School
PWS Address	12 Highland Avenue
City/Town	Westport, MA 02790
PWS ID Number	4334010
Local Contact	Reverend Hebert/David Emond
Phone Number	508-636-2644/508-674-0527

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	01G	100	422	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff is available to provide information about funding and other resources that may be available to you.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses in the Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

1. Description of the Water System

Well #1 provides drinking water to approximately 200 people at the St. George School. The well has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 422 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map for land uses that are located within the Zone I and IWPA.

DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the public water system person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

Key issues include the following.

1. Zone I Issues (school, parking)
2. Residential
3. Transportation Corridors
4. Cropland

The overall ranking of susceptibility to contamination for the well is MODERATE based on the presence of at least one MODERATE threat within the Zone I and IWPA.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Potential Concern
School, Parking	Yes	Yes	Moderate	leaks or spills of chemicals from laboratories, art & photographic studios, machine shop; runoff from parking lot
Residential	No	Yes	Moderate	spills or leaks from fuel delivery & storage; microbial contaminants from septic systems; pesticides and fertilizers from lawn care
Transportation Corridors	access road	Yes	Moderate	leaks or spills of fuel and other substances; contamination from vehicular accidents; over-application or spills of pesticides for vegetation management along rights-of-way

*** For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

1. **Zone I –** The public water system owns or controls the entire Zone I and conducts inspections. The school and 100 spaces of parking are located within the Zone I. The public water system does not meet DEP's Zone I requirements because of non-water supply activities within the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations

- ✓ As much as possible, keep non-water supply activities out of the Zone I.
- ✓ Do not use pesticide, fertilizers or de-icing materials within the Zone I.
- ✓ Post water supply protection signs in the Zone I.

2. **Residential** – Thirty-three percent (33%) of the IWPA consists of residences. In addition to potential threats from spills or over-application of pesticides and fertilizers used for lawn care, the following activities are potential contaminant sources associated with residential land uses.

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Recommendation

- ✓ Educate residents on source protection measures for protecting water supplies. Distribute the enclosed fact sheet *Residents Protect Drinking Water*.

3. **Transportation Corridors** – Local roads are located within the IWPA. Leaks and spills, vehicular accidents, and over-application or spills of pesticides are potential sources of contamination.
In addition, stormwater from roadways and adjacent properties flows over, and discharges to, the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance and washing.

Recommendations

- ✓ Wherever possible, ensure that drains discharge to outside the Zone I and IWPA.
- ✓ Educate residents on source protection measures for protecting water supplies. Distribute the enclosed fact sheet *Residents Protect Drinking Water*.

4. **Cropland** – Twenty percent (20%) of the IWPA is used as cropland. The water system reports that fertilizers and pesticides are not used or stored within the IWPA.

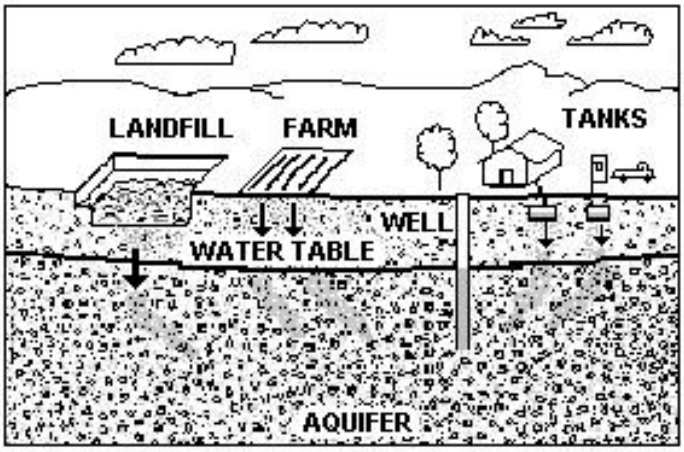

Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information

Contact Isabel Collins in DEP's Lakeville Office at (508) 946-2726 for more information and for assistance in improving current protection measures.

Additional Documents

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information;
2. MA DEP SWAP Strategy;
3. Land Use Pollution Potential Matrix; and
4. Draft Land/Associated Contaminants Matrix.

Copies of this assessment have been made available to the public water supplier and town boards.

3. Recommendations for Protection

Implementing protection measures will reduce the well's susceptibility to contamination. School and town administrators should review and adopt the key recommendations above and in the following sections.

Priority Recommendations:

Zone I

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Continue to inspect the Zone I.
- ✓ Post water supply protection signs in the Zone I.

Training and Education

- ✓ Educate residents on source protection measures for protecting water supplies. Distribute the enclosed fact sheet *Residents Protect Drinking Water*.
- ✓ Educate staff and students on the proper use and disposal of chemicals and other substances.
- ✓ Incorporate water supply protection information into the school curriculum.

Facilities Management

- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Review the enclosed *Healthy Schools* fact sheet.

Planning

- ✓ Work with town officials to improve water supply protection.

Funding

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under that program. For additional information, please refer to DEP's web site. Other funding opportunities are described in *Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation* at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply Protection Area
- Recommended Source Protection Measures fact sheet
- Healthy Schools fact sheet
- Residents Protect Drinking Water fact sheet
- Source Protection Sign Order Form